

NUCLEAR DIVISION NEWS

UNION
CARBIDE

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 2 — No. 11

OAK RIDGE, TENNESSEE

Thursday, June 3, 1971

Robots In Our Future

By Glenn T. Seaborg

For the past 50 years or so, one of the favorite subjects of science fiction writers has been the robot. He is usually pictured as looking and acting just like a man, and in some stories robots actually succeed in conquering man altogether. Such science fiction-type robots do not pose any immediate threat to civilization's life style.



One reason for this is that many of the special duties that we need a machine to perform could not be handled efficiently if it were in the shape of a man. Why should it have two awkward legs when it could roll on wheels? Why should it have two eyes focused in the same direction when it could "see" all around itself simultaneously?

Dr. Seaborg

Robot Stronger

If there is little chance for a self-controlling man-like robot in the near future, scientists have nevertheless made progress with machines called "humanoids" that simulate a few components of man and that provide greater strength, dexterity, or access to hostile environments. For example, earlier this year an electric company demonstrated a machine that looks like a walking truck. It is 11 feet high, has four massive mechanical legs, and is operated by a "driver" who sits in what could be called the cab. It can pick up small vehicles, lift a 500-pound load with one foot, and slide 1,000-pound loads across the ground. The operator commands it by simulating the motions he wants, as if he were walking on all-fours, and these moves are relayed to the machine as directions.

The company is developing another humanoid that will look much more like science-fiction robots. But it will be merely a mechanical covering for a human operator inside. It is called Hardiman, and it would amplify its operator's strength about 25 times. It should be able to make virtually every move a man can make, and it would allow its operator to carry loads of 2,000 pounds or more.

Combined Technology

Still, Hardiman won't have the ability to control itself that authentic robots would have. This would require a computer for a brain, and some progress is being made in that direction. Case Western Reserve University is developing a computer system that will direct a mechanical manipulator to dismantle a nuclear rocket reactor without the need of human supervision.

By combining the developing technologies of humanoids and of computers, we may someday have a machine that we could call a robot. But most likely it would not look like man, since for the first time in history we will have a chance to improve the design.



ASME FELLOW—Mrs. Sylvan Cromer pins a label button on her husband, signifying his election to the member grade of Fellow in the American Society of Mechanical Engineers. The Fellow certificate was presented to Cromer at the annual spring meeting of the East Tennessee and Oak Ridge Sections of the ASME at Tapoco, N. C.

Mechanical Engineers Name Sylvan J. Cromer A Fellow

Sylvan J. Cromer, director of engineering for the Nuclear Division, has been named a Fellow in the American Society of Mechanical Engineers. The honor caps a long career for the man responsible for the engineering and process improvement programs for the three facilities operated here by Union Carbide Corporation.

Cromer, a native of Oklahoma, received his BS and MS degrees in mechanical engineering from the University of Oklahoma, where he taught mechanical engineering for eight years. He also taught at Louisiana State University.

Cromer first became associated with Union Carbide in 1944 as assistant superintendent of the engineering division at the gaseous diffusion plant. For a year, he was on loan to the University of California at the Los Alamos Scientific Laboratory as superintendent of plutonium processing and fabrication. In 1947 he returned to Oak Ridge as superintendent of the engineering development division, and, in 1950, was made chief engineer in charge of engineering for the diffusion plant. In 1954, he was made co-director, Aircraft Reactor Project and director, Aircraft Reactor Engineering Division at the Oak Ridge National Laboratory. He was appointed vice president in charge of engineering of the Nuclear Division in 1957. In 1965, when the industrial functions of the Nuclear Division were merged with the Ore and Metals Divisions into the Mining and Metals Division, he became director of engineering.

Back to Oak Ridge

In April, 1967, Cromer transferred from the Mining and Metals Division to the Nuclear Division in Oak Ridge as assistant to the general manager for production. In September of that year, he was appointed director of engineering, production, with responsibility for engineering and process improvement programs

for the Nuclear Division's production complex.

Cromer is a member of the American Institute of Mining and Metallurgical Engineers, Scientific Research Society of America, Tau Beta Pi, and Pi Tau Sigma.

Mrs. Cromer is the former Rubye Le Fevers of McAlister, Okla. They live at 123 Windham Road in Oak Ridge, and have four children: William R. Cromer, Bellevue, Ohio; Mrs. James Peters, Knoxville; Mrs. Bruce Marden, Hingham, Mass.; and Dianne Lynn Cromer, attending Denison

(Continued on Page 6)

Act Now for Prompt Savings Plan Payday

Did you know that June 30 is "payday" for Union Carbide's Employee Savings Plan?

OK. So, everybody knows. How could savers forget!

But to assure that your savings check gets to where you want it, check your home address as listed on your regular pay check stub. Central Payroll advises that all checks, unless you arrange otherwise, will be mailed to your home address as listed on your check and in the address block of your plant newspaper.

If the address is wrong or if you prefer that the check be mailed to a bank or some other address, you must visit your plant's Timekeeping and Paymaster Department and complete the necessary form before June 18.

Appropriately enough, the form which expedites the change is called "Authorization to forward savings plan check to paymaster's office or deposit in bank."

Central Payroll also reports that checks will be mailed on the afternoon of June 29, so Oak Ridgers should have them in their homes on the 30th.

1,500 Additional Nuclear Division Employees Sign for Savings Bonds

More than 1500 additional Nuclear Division employees have signed up for U. S. Savings Bonds through the payroll savings plan, according to W. E. Williams, overall chairman for the drive.

As of May 25, a total of 1,549 new payroll savers have been added to the Savings Bond list, bringing the total for the four Nuclear Division facilities and the general staff to 5,079.

As a result, about one out of every three employees is now saving for bonds through payroll savings. The breakdown for participation is as follows:

Facility	Savers at Start of Drive	New Savers	Total
General Staff	166	73	239
ORGDP	594	546	1,140
ORNL	1,107	354	1,461
Paducah	264	127	391
Y-12	1,399	449	1,843
Totals	3,530	1,549	5,079

Members of the multi-plant committee for the May-long payroll savings campaign are: C. E. Benson, Oak Ridge National Laboratory; E. A. Pluhar, Oak Ridge Y-12 Plant; K. W. Sommerfeld, Oak Ridge Gaseous Diffusion Plant; Joe White, Paducah Gaseous Diffusion Plant; and H. C. Wright, General Staff.

Participation in the payroll savings plan provides for a minimum investment of 50 cents a week or two dollars a month. In order to participate, employees must fill out a payroll authorization card. When filling out the card, employees must indicate the dollar value of the bonds they wish to purchase. While bonds come in various denominations, the most popular are the \$25, \$50 and \$100 bonds.

U. S. Savings bonds are registered securities. As such, they are "indestructible." If a bond is lost, stolen, damaged or destroyed, it will be replaced by the U. S. Treasury at no cost. Over the years, fires, storms, thefts and accidents have taken a large toll of U. S. Savings Bonds, but not a penny ever has been lost by the owners.

Greater Life Span

Meanwhile, the Treasury has announced extensions in the maturity of the older savings bonds.

Savings Bonds purchased from May 1941 through April 1952, the first of which would have begun to reach maturity last month, have been granted a third 10-year extension. This extension will give these early bonds a life span of 40 years.

At the same time, the Treasury announced that Series E Bonds issued from May 1952 through January 1957, and Series H Bonds issued from June 1952 through January 1957, have been granted a second 10-year extension.

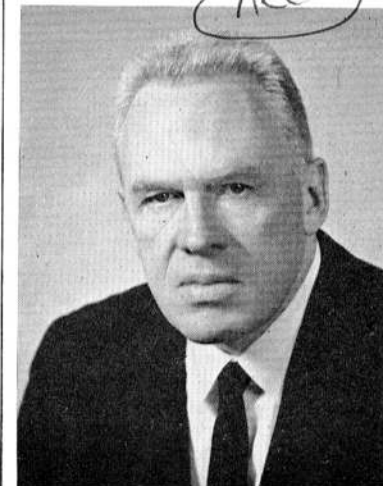
Freedom Shares

U. S. Savings Notes—known as Freedom Shares—which were on sale from May 1967 through June 1970 have been granted a 10-year extension beyond their initial 4½ year maturity period.

The interest rate for Savings Bonds and Freedom Shares in extension will be the rate prevailing at the time they enter the extension period. The current rate is a flat 5½ percent during extended maturity.

Early E Bonds—known as "Defense" or "War" Bonds—were sold to help finance the enlarged expenditures associated with World War II. Of the \$53 billion of Savings Bonds outstanding today, \$5.6 billion date from World War II days.

Wende Retires



Ernest A. Wende

Ernest A. Wende, Deputy Manager of the Atomic Energy Commission's Oak Ridge Operations for the past 18 years, retired recently after approximately 37 years of service with the Federal Government.

Wende also had a key role with the AEC's Oak Ridge Operations during a major expansion of gaseous diffusion production capacity in the early 1950's.

In announcing Wende's retirement, S. R. Sapirie, Manager of the AEC's Oak Ridge Operations, said, "His professional ability and leadership will be a loss for the atomic energy community and most certainly for Oak Ridge Operations. His accomplishments have been numerous and his sincere devotion and loyalty to the principles of public service have been clearly demonstrated throughout his long career."



ENGINEERING PICNIC—A host of picnickers enjoyed the summer sunshine at the Clark Center Recreation Park recently. The engineers from Y-12 and ORGDP ate, played softball, talked, and lazed around at the lakeside retreat. The successful event will be repeated, naturally.

Joint Venture To Market UNOX

Showa Denko K. K. of Tokyo and Union Carbide Corporation have reached basic agreement on the formation of a joint venture company to operate in the area of municipal and industrial wastewater treatment. This new company will market Union Carbide's revolutionary new Unox wastewater treatment system. Showa Denko will provide sales, engineering, and construction activity.

In the treatment of wastewater with conventional activated sludge processes, which cause bacteria to break down organic substances contained in wastewater, large volumes of compressed air are required for aeration. With the Unox system oxygen is used in place of air.

The new joint venture company will also market oxygen generating equipment, for use with the

Unox system, which may be supplied by conventional cryogenic air separation or by means of Union Carbide's proprietary PSA (pressure swing adsorption) process. This process uses Molecular Sieves, a product of Union Showa K.K., a joint venture company of Showa Denko and Union Carbide Corporation.

There are several benefits of using the Unox system. For example:

- The land area required for aeration equipment can be reduced to as little as one fourth of that for conventional processes.

- Capital costs of the system are 40 to 50 per cent less from that for conventional processes, and operating costs can be reduced by about 50 per cent.

- The Unox system is applicable to existing air-aerated activated sludge systems as a simple and relatively inexpensive means of increasing their treatment capacity.

- In addition, the Unox system generates less excess sludge, reduces sludge disposal costs, and virtually eliminates odor.

Union Carbide has been operating Unox systems in the United States for more than two years. A full-scale sewage treatment plant at Batavia, New York, was operated with great success for a period of almost two years. Unox systems are under construction in Detroit, Mich., and New York City, N. Y. Firm decisions to design Unox systems have been made by more than 10 other American municipalities.

AEC's Concrete Tests Prove Worth in Highway Research

A 12-pound device resembling a portable radio with a three-foot aerial may help cut down the tough and costly job of replacing inferior sections of new highway concrete.

The Atomic Energy Commission, working with the Federal Highway Administration, has developed a portable gauge to measure the quantity of cement in a wet concrete mix before it is

poured in place. At present, highway builders and inspectors have no practical way to make quality tests until after the mixture has hardened.

The battery-operated instrument measures the cement content through a probe containing two radioactive sources — cesium-137 and americium-241. Radiation intensities or energies given off by these gamma ray sources

when immersed in a wet concrete mix are recorded electronically. The readings reveal in less than a minute how much cement the mix contains and whether it meets specifications.

Accuracy tests show a maximum variance of only one percent of cement content for most types of concrete mixes. The gauge is now being evaluated by U. S. Department of Transportation.



ELKS PLACE HIGH—The Oak Ridge BPOE Lodge officers competed in the state-wide ritualistic contest at the convention in Kingsport in early May. Nuclear Division men above saw the local lodge win second place in team competition, and take three first place, two second place, and one third place in individual competition. From left are Bill Bush, ORNL; Howard Shoptaw, ORGDP; Lou Kovac, Y-12; Tom Mullinix, ORGDP; Paul Williams, Y-12; Clarence Dawn, ORGDP; and Paul Woods, ORNL. Coach L. W. Anderson, ORGDP, was not present for the photo.

NEWS

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JAMES A. YOUNG Editor



Member
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OFFICE
Post Office Box Y
Oak Ridge, Tenn. 37830
Telephone 3-7100 or 3-5345

6-14973



ANOTHER PATENT APPLICATION—Chemistry Development produces another patent application, as William L. Harper, left, and Wesley E. Smith, right, develop the 'Synthesis and Polymerization of Truxene.' They accept their dollar application letters from James M. Schreyer, superintendent of Chemistry Development.

Y-12 Milestones

Congratulations to a host of Y-12ers who mark important dates with Union Carbide Corporation.

25 YEARS

Edward C. Hodges, Machine Maintenance, June 6.
James E. Williams, Utilities Administration, June 6.

20 YEARS

Bill Tackett, Process Maintenance, June 1.
Herbert L. Mitchell, Buildings, Grounds and Maintenance Shops, June 1.
Robert L. Hopson, General Machine Shop, June 4.
Augustus E. Perry, Dimensional Inspection, June 4.
William L. Harper, Chemistry Development, June 4.
Paul L. Cook, Buildings, Grounds and Maintenance Shops, June 4.
Harry T. Clark, General Machine Shop, June 4.
Beryl K. Calfree, Receiving Department, June 4.

James C. McKinney, Area Five Maintenance, June 4.

Garnett W. Johnson, Chemical Services, June 4.

George C. Meredith, Chemical Services, June 4.

Ruby M. O'Kain, Data Processing, June 4.

Anderson Halcomb, Facilities Engineering, June 4.

Wiley B. Redmon, Beta Four Heavy Machine Shop, June 5.

David F. Leach, Research Services, June 5.

Claude E. Noland, Receiving Department, June 5.

Clyde C. Jones, Area Five Maintenance, June 6.

Paul L. Patrick, Buildings, Grounds and Maintenance Services, June 7.

Vernie A. Mattox, Buildings, Grounds and Maintenance Services, June 9.

James H. Oldham, Graphite Shop, June 10.

(Continued on Page 4)

Five Y-12ers' Retirement Effective the First of June

Five Y-12ers retired last week, taking more than 116 years of company service with them.

Herman J. Hall, Tool Department; **Russell F. Moyers**, Electrical and Electronics; and **Grady E. Simpson**, Fire Department, retire; and **Oliver L. Keene**, Materials Transfer and Packing; and **Spencer D. White**, Buildings, Grounds and Maintenance Shops, elected early retirement.

Good luck!

WORRY—A REAL HAZARD

"There is quite a tendency to worry over bills, over health, over position, over any number of things—and worry is a real killer. It is now known that worry can kill by causing mental illness, heart disease, and many other disturbances of the human mind, body, and emotions. Obviously, if a person wants to be healthy, he must overcome his anxiety or worry."

—William L. Fischer in NEW

Off-the-Job Accidents Are Spotlighted During June's Safety Programs Here

Traditionally, the emphasis on off-the-job safety has been developed in annual safety meetings conducted throughout the Oak Ridge Y-12 Plant. During the month of June, off-the-job safety will again be the subject of all formal safety meetings. Case histories of typical accidents and injuries experienced by Y-12ers during the past year will be discussed. Hopefully, everyone will gain insight into the reasons for such accidents and develop a better understanding as to how they can be prevented.

Automobile accidents continue to be the leading causes of disabling injuries. Two excellent folders on safe driving were recently mailed to all employees. Published by the National Safety Council, these folders gave example after example of various types of road accidents and their causes. The use of information contained in both booklets can contribute significantly toward the prevention of automobile accidents. Not only do we have our own responsibility for our own safety, we are also responsible for the safety of our families, and our fellow man.

A study of the record of past performance suggests that more effort is needed to achieve significant reductions in injuries occurring off the job. Increased emphasis through our plant safety program should contribute to an increased awareness and achievement of our objective... (i.e. to make our off-the-job safety record as good or equal to our on-the-job performance). Our safety performance must reflect a per-

sonel commitment to the idea expressed in the program theme for June: "There is no place for a weak link—Be safe—At home, at work, at play!"

As J. M. Case, plant superintendent, pointed out, "Let's all resolve to practice safety full time."

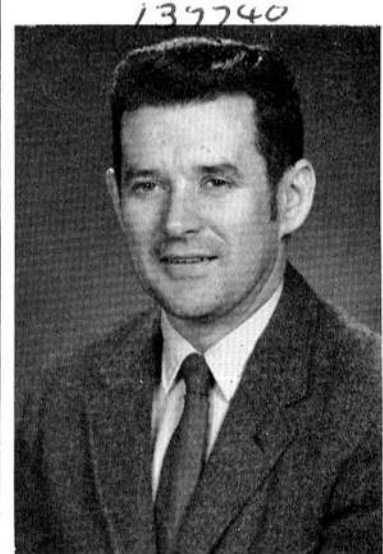
Y-12 Personnel To Give Talks AT ANS Meet

Union Carbide research personnel at the Oak Ridge Y-12 Plant's Criticality Studies Laboratory will present technical papers at the American Nuclear Society's annual meeting in Boston, Mass., June 13-18.

The papers to be discussed are "Simple Time-of-Flight Transmission Measurement for Incorporation in Nuclear Engineering Curricula," by J. T. Mihalczo and N. W. Hill, and "Guidance in Nuclear Criticality Safety," by J. T. Thomas.

The information contained in these reports was obtained through experimental work performed in support of U. S. Atomic Energy Commission programs.

Mihalczo To Teach at UT



J. T. Mihalczo

J. T. Mihalczo of the Y-12 Criticality Studies Laboratory, who recently received his Ph.D. degree in nuclear engineering from The University of Tennessee, has been awarded a teaching fellowship at U.T. The fellowship, originally established by funds from the Ford Foundation, will permit Mihalczo to teach one day per week at the University while continuing his service with Union Carbide.

SAFETY SCOREBOARD

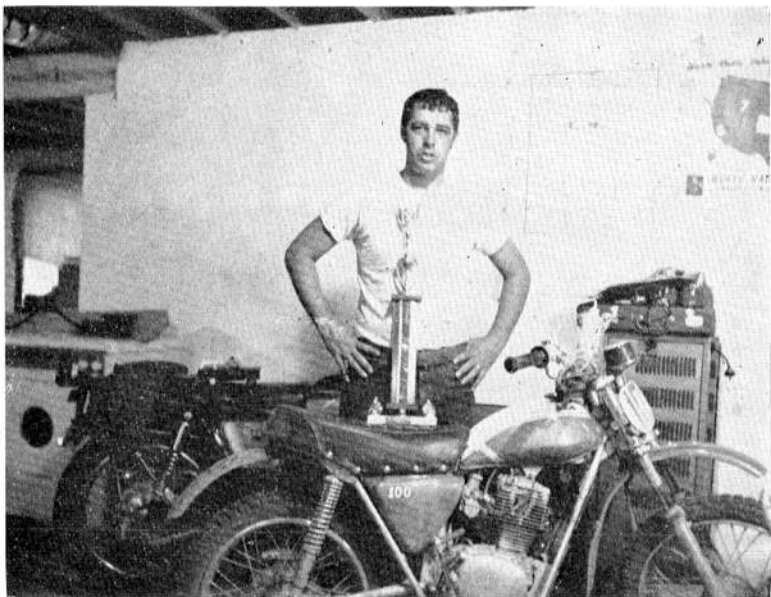
The Y-12 Plant Has
Operated
118 Days Or
4,686,000 Man-Hours
(Unofficial Estimate)
Through May 30
Without A Disabling Injury
SAFETY AT HOME,
AT WORK, AT PLAY



METALS MACHINING COURSE—Seventy-seven executives and technical personnel from various industrial firms in Knoxville, Morristown and Oak Ridge have completed a nine-week Machining of Metals course at the Training and Technology Facility at the Oak Ridge Y-12 Plant. The

course, taught by Y-12 development engineer R. L. Williams, was conducted to update the technical knowledge of the participants. It was sponsored by the Knoxville-Oak Ridge Chapter of the Society of Manufacturing Engineers. They are seen above in one of their classes.

139439



ENDURO WINNER—Bobby Argo, Machine Maintenance, won the 0-100 cc Class in the Catoosa Enduro recently. The event was sponsored by the Volunteer Riders' Association, and proceeds were donated to the East Tennessee Childrens' Hospital.

Alvey-Dorr Out-Distance Melton Hill Competitors

The team of Harold Alvey and Carl Dorr took temporary command of the Melton Hill Golf League recently, as the competition tightens in the 14-team race.

Walt Sherrod fired a 35, to lead the pack on May 18.

League standings (May 18):

Team	W	L
Alvey-Dorr	14	4
Reed-Sherrod	13	5
Butturini-Riggs	12	6
Emery-Holdaway	12	6
Hill-Raymer	12	6
Stephens-Tuck	12	6
Hogg-Kinlow	11	7
George-Babb	9	9
Sherrod-Wyrick	9	9
Burrus-McGinnis	7	11
Crowder-McDonald	5	13
Ammons-Jessen	4	14
Ludcke-Arrington	3	15
Amerine-Briscoe	3	15

Pryor-Lard Stand High In J Shift Golf League

Pryor and Lard hold down the top rung of the J Shift South Hills Golf League, with only one point loss against their record thus far. Dick-Wheeler wheel in as second rungers, leagues ahead of their nearest competition.

League standings (May 18):

Team	W	L
Pryor-Lard	17	1
Dick-Wheeler	16	2
Cornett-Scarborough	12	6
Clabough-Harris	11	7
J. D. Collins-A. Collins	11	7
E. Sise-Smith	10	8
Hawk-Baxter	6	12
Kirby-Miller	4	14
R. Collins-E. Collins	3	15
Lay-Smith	0	18

Bobby Argo Wins First Cycle Race

Bobby Argo, Machine Maintenance, won the 0-100 cc Class in the Catoosa Enduro recently. The object of the race is to traverse difficult terrain while maintaining a 24 mph average speed. Time is checked at various intervals with points being deducted for early (or late) arrival.

This was Argo's first entry into competition and he scored 977 points of a possible 1,000.

The event was sponsored by the Volunteer Riders' Association and the proceeds were donated to the East Tennessee Children's Hospital.

Bowers-Bowen 1-Point Leaders at South Hills

Bowers-Bowen cling to a one-point margin in the South Hills Golf League, after three weeks of stiff competition.

Parrot-Parker keep second slot as they downed the King-Johnson pair for the full count.

League standings (May 21):

Team	W	L
Bowers-Rowan	17	1
Parrott-Parker	16	2
Tipton-Watlington	14	4
Henderson-Nicely	12	6
Norris-O'Neal	12	6
Cowen-Troutman	9	9
Leete-Jones	9	9
Loupe-Ludwig	9	9
Pappas-Waldrop	7	11
Wright-Whithorn	6	12
Cogswell-Jones	6	12
Collins-Cabe	5	13
Huber-Parker	4	14
Ferree-King	0	18

Y-12 Milestones

(Continued from Page 3)

Marvin W. Honeycutt, Buildings, Grounds and Maintenance Services, June 11.

Warren G. Rattledge, Chemical Services, June 11.

Ralph H. Kent, Production Assay, June 13.

Edgar H. Erickson, Mail Department, June 13.

Lawrence E. Redmon, Buildings, Grounds and Maintenance Services, June 13.

Donald M. Hensley, 9214 Rolling Department, June 13.

Robert E. Cable, Casting Department, June 13.

Colleen Shotts, Casting Department, June 14.

Solon D. Peters, General Can Fabrication Shop, June 14.

Ford C. Massengill, Research Services, June 14.

15 YEARS

Paul E. Reagan, Alpha Five Processing, June 1.

Bailey B. Carter, Alpha Five Processing, June 6.

Edward H. Upton, Dispatching Department, June 6.

Robert C. Wheelock, Utilities Administration, June 6.

Wilford L. Hunter, Beta Four Forming, June 10.

10 YEARS

Robert L. Wesley, Public and Technical Information, June 5.

John B. Allen, Dimensional Inspection, June 9.

Start saving the money you thought you'd have saved by now.



Take stock in America Buy U.S. Savings Bonds

139464

Jim Pugh's 75 Low Score at Kingston Tournament; Record 209 Golfers Play!

Jim Pugh's three-over-par score of 75 was the best score carded at Y-12's second golf tournament of the season. The Southwest Point tilt drew 209 golfers, a record-breaking number!

Pugh was followed by Bob Carmack and C. W. Hamill, each with 77 . . . and Bill Grubb with 78.

Handicap scorers included J. L. Gamble, 70; Bud Leete, 71; Jim Kinlow, 73; and T. H. Tabor, 74.

Emerson Henck counted most pars, with 12. Jim Riikola and W. H. Tipton earned 11.

SECOND FLIGHT

H. S. Jones tallied best scores in the second flight with a score of 80. He was followed by Don Rogers, W. E. Briscoe and Bob Angel, all with 85.

Handicap winners were Dan Morgan, 71; R. A. Gallman and R. J. Graham, with 73 and 74 respectively. Dan Rowan, Jim Baxter and Roger Boyd all tied with a 75.

Frank Tiller fired nine pars, and D. B. Arnold scored eight.

THIRD FLIGHT

Tom Smith's 84 was the lowest tally in the third section of greensmen. He was followed by Harry Evans and Bo Glover, each with 88, and Edward Robinson with 90.

Handicap winners included Ronald Rhea and Mike Sawicki, with 68 each; W. D. Burger, 71; and Clyde Davenport and W. W. Jones, with 73 apiece.

M. J. Tharp counted eight pars . . . Bill Swartout, Burl Henry and Al Newbert found six.

Johnny Rhea led the field in the fourth division, carding an 88 score.

Rhea was followed closely by O. H. Dunaway, 91; R. K. Todd and H. C. Wright, each with 99.

Handicap lows went to Sam Babb, 69; H. P. Prewett, Jr., 73;

J. A. Lewis, 74; and Bob Forseman, 77.

Four pars were picked up by Brad Napier, and J. L. Brown, Frank Clayton, H. H. Buckner and Mickey Woody all scored three.

June's tournament is set for Whittle Springs, Knoxville, on Saturday, June 26. The greens fees of \$3 is payable at the club house. There are 20 carts available on a first-come, first-served basis. No cart reservations can be made.

Eagle Scout



Gregg Pappas

Gregg Pappas, son of Mr. and Mrs. Thomas G. Pappas, 202 Outer Dr., Oak Ridge, has earned the rank of Eagle Scout, the highest award in scouting.

The award was made at a Court of Honor held at Grace Lutheran Church recently, which sponsors Troop 224.

Greg has earned a total of 31 merit badges although only 21 are required for the award. He has been active in Scouting since 1966, serving as assistant patrol leader and patrol leader. He is presently senior patrol leader of his troop.

He has two younger brothers, Bill and Tommy, who are also members of his troop. His grandfather, William E. Pappas and uncle, Emanuel Pappas came down from Pittsburg for the ceremonies.

Greg's father is in Y-12's Beta Two Forming.

Tee-Off Time Application For Whittle Springs Golf Tournament

Knoxville, Tenn.

Saturday, June 26

Foursome

_____, Leader

Leader's office phone _____

Home phone _____

Tee-off Time Preferred _____

Fill out completely and return to the Recreation Office, Building 9711-5. Deadline for entering is 4:30 p.m. Wednesday, June 23. Tee-off times will be drawn the next day, Thursday, June 24 at 8 a.m.



COMPLETE COURSE—Congratulations to the above men for completing the six-week Assembly Training Course. From left are D. M. Nabors, J. C. Gross, W. R. Allen, W. E. Shoopmen, R. E. Rooks, D. R. Craig and W. R. Tedder.

THE CARBIDE COURIER

Thursday, June 3, 1971

Page 3

Educational Assistance Plan Offers Cash Reimbursements

Dan Johnson, ORGDP Representative for the Educational Assistance Program (EAP), announces that cash payments for Educational Assistance will begin with reimbursements for courses taken during Spring Quarter 1971.

Cash payments are being started as a convenience to employees and, in most cases, should mean an earlier refund. Following are some questions and answers related to the new way of handling payments.

1. **Where will I submit my application for reimbursement?** Just continue to send the applications to the Educational Assistance Office, K-1001, MS 128, along with your receipts for expenditures and grade report or other evidence of satisfactory completion. Don't forget to sign and date the application on line 10.

2. **When will my application be processed?** Your application will be processed in the order received, with the only exceptions being unusual situations. You should make certain that appropriate receipts and evidence of satisfactory completion are attached so that processing of your application will not be delayed.

3. **Where will the cash payment be made?** At the Cashier's Office, K-1001, except for Purchasing employees (see 4b).

4. **When will I know to go by the Cashier's Office for my refund?**

a) If you are physically located at the K-25 Plant site, you will be notified by telephone to stop at the Cashier's Office at your convenience. If you cannot be reached by telephone, notification will be made by Plant mail. Such contact, whether by telephone or mail, will be made by the Educational Assistance Office.

b) The applications for Purchasing employees are first pro-

cessed by the Educational Assistance Office, then sent to Mr. H. C. Wright for reimbursement. He will advise Purchasing employees when their refunds are available.

3. **Can I still receive payment by check?** Yes, but only in case of extenuating circumstances. For example, a Co-op student who has completed course work during his term of employment but who does not receive payment before termination should request payment by check. Requests for refunds by check should be in writing and attached to the application giving the reason for such request.



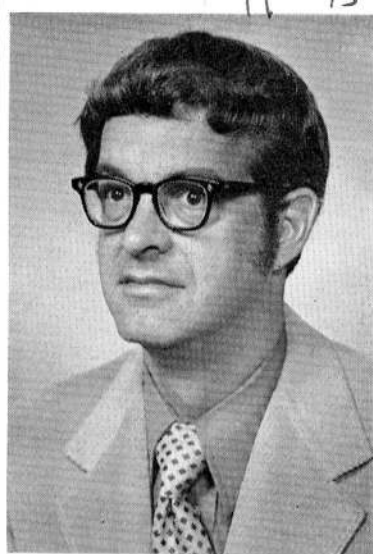
Carpool member wanted from West Hills Area in Knoxville to Administration Area, 7:45 to 4:15. Ben Eller, phone 3-3226, home 584-6319.

Rider wanted from South Knoxville or Bearden area to K-25, 8:00 to 4:30. Woodrow Wills 3-3401, home 577-8245.

'Honor Among Thieves'

Mrs. S. V. Haun, wife of Sam Haun of the Garage, had her purse stolen while she was in a laundromat on May 8. On May 12 she received an envelope through the mail with 12 cents postage due. In this envelope were her credit cards, drivers license and pictures of the grandchildren. Of course the small amount of money that was in the purse was not returned.

All crooks are not all bad.



Charles E. Price

Price Authors Article For Computing Journal

Charles E. Price, Information Systems Department of the Computing Technology Center, is the author of an article appearing in the June, 1971 issue of Computing Surveys Journal. The purpose of "Computing Surveys" is to enable the computing specialist to become aware of the state-of-the-art in the diversified areas of this rapidly expanding field.

The title of Price's article is "Table Lookup Techniques."

Looking for information in a table (or reference book) is a frequent happening in everyday life. For instance, we may look up a person's telephone number, the decimal equivalent of a fraction, or the recipe for pecan pie. Likewise in many computer programming tasks, looking up or searching for some information in a table is required.

Only since computers have come into use has the technical aspects of table lookup been of any real interest. There are several ways to go about lookup in computer programming and this article describes and classifies

(Continued on Page 4)

Additional Toll Enrichment Contracts Signed by AEC

The Atomic Energy Commission recently signed five additional agreements for providing approximately \$370,242,348 in uranium enrichment services to the nuclear power industry.

The new agreements bring to a total of 63 the number signed by the AEC since its toll enrichment program began in January, 1969.

There are presently 51 active contracts, including 26 with United States firms and 25 with customers in other countries, covering supply periods up to 30 years duration and with a total value of approximately three and one-half billion dollars.

PSEG Is Largest

The five new contracts are with Public Service Electric and Gas Company, Newark, N.J.; Niagara Mohawk Power Corporation, Syracuse, N. Y.; Yankee Atomic Electric Company, Westboro, Mass.; and the General Electric Company, San Jose, Calif.

The contract with Public Service Electric and Gas Company is the largest of the five, involving approximately \$253,807,296 worth of uranium enrichment services over the 30-year life of the contract, based on a charge of \$32 per unit of separative work. Enriched uranium provided under the contract will be used in the fabrication of fuel elements for the Company's Sale Nuclear Generating Station, units one and two, scheduled to go into operation in 1972 and 1973, respectively.

30-Year Term

Approximately \$64,227,200 worth of enrichment services will be provided Niagara Mohawk Power Corporation under its 30-year contract with the AEC. The enriched uranium supplied will be fabricated into fuel for the Company's Nine Mile Point Nuclear Station at Scriba, N.Y., which produces some 500,000 kilowatts of electrical power.

The contract with Yankee Atomic Electric Company calls for the AEC to provide approximately \$29,733,664 worth of uranium separative work over the 30-year term of the contract. The uranium-235 provided under the contract is destined for the Company's Yankee Atomic Nuclear Power Station at Rowe, Mass.

For Indian Point

The agreement with General Electric is the fourth such contract the Company has with the AEC, and will involve some \$21,080,288 worth of separative work over a six-year period to provide enriched uranium for the Cooper

Nuclear Station, Brownville, Neb. The plant is owned by Nebraska Public Power District and Iowa Power and Light Company. The 778,000 kilowatt power station is scheduled for operation in 1972.

Consolidated Edison's contract with the AEC will involve some \$1,393,900 worth of separative work during July and August of 1971 to supply enriched uranium for the Company's Indian Point nuclear Power Station (Unit one) in New York.

Primary Method

Enriching services contracts between the U. S. Government and the builders or operators of nuclear power plants for the production of electricity represent the primary method for the supply of enriched uranium for fueling these plants.

Enrichment of uranium involves the separation of the fissionable uranium-235 isotope, which makes up only seven-tenths of one percent of natural uranium, from the more abundant uranium-238 isotope. The separative work is performed at the AEC's gaseous diffusion plants here, at Paducah, Ky., and Portsmouth, Ohio.

A proud way to save.



**Take stock in America
Buy U.S. Savings Bonds**

BULLETIN!

ORGDP employees exceed goal! May 28 figures show 52 percent of all employees enrolled in the purchasing of U. S. Savings Bonds through payroll deductions.

U. S. Savings Bond Goal in Sight!

By the time we receive this issue of the Nuclear Division News, we are confident that ORGDP will have exceeded our goal of over 50 percent enrollment in the Payroll Deduction Plan for the purchase of U. S. Savings Bonds.

As of May 21, four divisions had gone over the 50 percent participation mark — Engineering had 65.8% enrollment, Shift Operations and Security 62.8%, Finance and Materials 56.4% and Industrial Relations 50.7%.

The total plant participation, as of May 21, stood at 49.9% with approximately 10% of the enrollment cards still unreported.



ACHIEVEMENT AWARDS—Four men are completing the Operator Trainee Program conducted by the Operations Division at ORGDP. The course includes 15 months of classroom and on-the-job training in the skills required to operate the many different types of equipment used in the gaseous diffusion uranium isotope separating process. Holding their plaques from the left are J. A. Sharpe, J. L. Wilson, R. L. Hudson and J. W. Coffman. On the left, R. H. Dyer, Cascade Operations Department Superintendent, made the presentation. At right, L. J. Davis, training coordinator, and W. D. McCluen, coordination and training, look on.

Boatwright Does It Again!

Alvin Boatwright shot a sub-par 70 on the 72 par Wallace Hills Golf Course to win the second K-25 Golf Tournament on May 22. Sy Kopplin won handicap laurels in the first division with a net 72.

Ralph Armstrong and Jack Thompson tied for scratch honors in the second division, both shooting 81. Bill McEvoy had the best handicap score in this division with a net 70.

Clarence Hawkins had low scratch score in the third division with an 89. Joe Wolfe, with a 30 handicap scored a fantastic net 59 to capture the handicap prize.

Only seven golfers out of the 138 that played hit No. 14 green in the hole-in-one contest. The weather was perfect, the course in excellent shape and a good time was had by all.

DIVISION I		
First Nine	Second Nine	
Jim Petrucci 35	A. H. Marshall 34	
Sy Kopplin 36	W. T. Carter 35	
W. A. Davis 37	Bob Schilling 35	
Wes Hightower 37	H. E. Shaw 35	
A.S. Boatwright 38	H. Sullivan 35	
Steve Cates 38	John Cobb 36	
John Cobb 38	J. R. Goss 36	
Bill Fort 38	Sy Kopplin 36	
Lloyd Kahler 38	C. E. Powell 36	
J. F. Kirchner 38	Gene White 36	
Jim Mooney 38		
C. S. Patton 38		
C. E. Powell 38		
H. Sullivan 38		
Gus Kosinski 38		
No. 6 Hole-In-One		
John Goss 6 ft. 5 in.		
Walt Wendolkowski 12 ft. 6 in.		
No. 14 Hole-In-One		
Wes Hightower 29 ft. 12 in.		
Bob Lynn 37 ft. 1 in.		
DIVISION II		
First Nine	Second Nine	
Ted Kwasnoski 35	R. O. Meyers 33	
H. W. Phillips 35	R.M. Armstrong 34	
A. J. Thompson 35	R. A. Carter 34	
Bill McEvoy 36	Bill McEvoy 34	
Bob Pyle 36	Bob Green 35	
R.M. Armstrong 37	Ted McKenzie 35	
G. B. Brooks 37	D. M. Lang 36	
Bob Green 37	A. J. Thompson 36	



Alvin Boatwright

George Job	37	R. R. Abbott	37
B. K. White		George Harper	37
		John Hill	37
		Ted Kwasnoski	37
		C. H. McIntyre	37
		Bill Myers	37
		Bob Pyle	37
No. 6 Hole-In-One			
L. P. Pasquier		9 ft. 5 in.	
B. K. White		13 ft. 4 in.	
No. 14 Hole-In-One			
D. R. Lawrence		28 ft. 4 in.	
DIVISION III			
First Nine		Second Nine	
Joe Wolfe	29	Joe Wolfe	30
Jim Qualls	35	S. E. Bridges	33
H. L. Simmons	36	H. L. Simmons	33
Doug Fain	36	C. H. Easler	34
John Davenport	37	R. L. Campbell	35
Clar. Hawkins	38	Clar. Hawkins	35
Lyle Hensley	38	Noah Allen	36
Loy Sipe	38	T. A. Angelelli	36
John Human	39	John Davenport	36
Ray Koteski	39	E. D. Legg	36
E. D. Legg	39	H. J. Mayberry	36
L. L. McCauley	39	Sid Speckter	36
R. Wisecarver	39		
D. R. Raines	39		
C. W. Watson	39		
D. B. Johnson	39		
L. F. Allard	39		
Claude Bridges	39		
No. 6 Hole-In-One			
L. C. Hensley		4 ft. 10 in.	
M. B. Hartman		10 ft. 4 in.	
No. 14 Hole-In-One			
Harvey Kitchen		10 ft. 6 in.	
Joe Keen		39 ft. 2 in.	

Next Tournament

Southwest Point, Kingston is the site for the next tournament to be held on Saturday, June 26. Starting times may be obtained from the Recreation Office on Monday, June 21.

THE CARBIDE COURIER

Published Biweekly
Editor H. J. Mayberry
K-1002 Building, Tel. 3-3097

Lab Notes

Mrs. Gladys Langdon, wife of Aubrey Langdon, who is in charge of the Laboratory Division's Instrumentation Section, has recently been named statewide president of a prominent women's organization, PEO. This philanthropic and educational organization includes numerous chapters and several thousand members in the state of Tennessee.

Two Mobile Watchdogs Sniff Out and Measure Any Nuclear Material

Two mobile electronic watch-dogs capable of sniffing out and measuring source and special nuclear materials have been developed for the Atomic Energy Commission's nuclear materials safeguards program.

Developed by Gulf General Atomic, of La Jolla, Calif., and by Los Alamos Scientific Laboratory, Los Alamos, N. M., the transportable assay systems are contained in long trailers. They are suitable for temporary or permanent installation at fabrication and spent fuel reprocessing plants, other industrial sites, ports and terminals, or anyplace else where a rapid, nondestructive assessment of packaged atomic goods is needed.

The principal purpose of the AEC safeguards program is to insure against diversion of special nuclear materials such as uranium and plutonium for clandestine use in nuclear weapons, and other unauthorized uses.

Though the Los Alamos and General Atomic mobile units operate in different ways, they both use small accelerators, more commonly known as atom smashers, to generate nuclear radiation, and computers for data recording and analysis.

The assay process is based on the principle of activation analysis—using penetrating beams of radiation to induce secondary radiation in unknown materials. This induced radiation is then measured with detectors and its characteristics are analyzed by the computers. In this way, the type and amount of nuclear material in a package can be established within minutes and often with better accuracy than by sampling and chemical analysis.

Applications of nondestructive assay techniques go beyond the vital mission of detecting misappropriation of special nuclear materials, Crowson noted. For example, he points out that replacement reactor fuel or nuclear materials for industrial or medical purposes — known as isotopes — can be analyzed quickly without disturbing packaging or the shape of the materials. The techniques are of great value for monitoring atomic materials in commerce and industry.

NEW NATIONAL EMBLEM

Remember when . . . parents and babysitters were the same people? . . . you bought \$5 worth of groceries and had to hold the bag from the bottom? . . . "on time" meant punctuality and not a deferred payment on a car or other debt?

REPORT PORNOGRAPHY

Anyone receiving unsolicited pornographic materials in the mail is urged to complete post office form No. 2150 which is available at all post offices. The form is a request to be removed from the mailing list of the sender.

Postal authorities have advised that they can prosecute only when pornographic materials are received by an individual after he has completed form 2150.

SAFETY SCOREBOARD
OUR PLANT
Has Operated
339,000 Safe Hours
Through May 27
Since last disabling injury on May 4



A WHOPPER!—Norm Rathbone holds a huge largemouth bass he caught in Melton Hill Lake this Spring. Of course, it is entered in the K-25 Annual Rodeo, so the size remains a secret. A reminder: Is your latest catch entered?

YOU DON'T HAVE TO GO TO—

"Some years ago two state senators from Massachusetts became involved in an angry debate. In the course of the altercation, one said to the other, 'Go to hell!'"

The second senator, who considered himself highly insulted by his colleague, appealed to the governor to do something about it.

The governor (Calvin Coolidge, who later became president of the United States) sent back this reply: 'I've looked up the law, Senator, and you don't have to go there.'"

—Winifred Wilkinson
in UNITY

Price Authors Article

(Continued from Page 3)

them. It discusses each technique and gives examples of where they might be used.

The article requires some basic schooling in computer concepts to be understood but is written primarily for the beginning programmer or the programmer who has not previously studied table lookup methods.



ORGDP COUPLE WED—Mr. and Mrs. Michael Earl Mitchell were married on May 15 in the First Baptist Church, Kingston. The bride, formerly Beth Bradshaw, works in the Construction Engineering Department. The groom was recently promoted to an associate production engineer in the Waste Management and Pollution Control Department of Shift Operations and Security. The couple is living in Kingston.

FAMOUS ATOMIC SCIENTISTS

Dr. JOHN A. WHEELER
OF PRINCETON UNIVERSITY

COLLABORATING, IN 1939, WITH THE GREAT NIELS BOHR, HE HELPED LAY THE CORNERSTONE FOR ALL LATER UNDERSTANDING OF THE FISSION PROCESS

HIS WORK ON REACTOR SHIELDING THEORY, REACTOR CONTROL AND HEATING WERE MAJOR ACCOMPLISHMENTS

A PIONEER RESEARCH SCIENTIST AND DISTINGUISHED TEACHER, THIS GIANT IN THE FIELD OF PHYSICS RECEIVED THE AEC'S 1968 ENRICO FERMI AWARD, ONE OF THE WORLD'S HIGHEST CITATIONS IN NUCLEAR SCIENCE

Genetic Studies

Primitive Tribes Observed

Visiting with tribes of primitive Indians in the jungles of South America may sound like an unusual way to advance our understanding of nuclear science, but that's exactly what a team of researchers is doing in a project sponsored by the Atomic Energy Commission and the National Science Foundation. The aim of the project is to discover how civilization alters a population's genetic characteristics. Such knowledge is important to nuclear science because it is basic to understanding how radiation might affect our genetic legacy.

Tracing Genetic Changes

Under the direction of Dr. James Neel, Professor of Human Genetics at the University of Michigan Medical School, and with the collaboration of the Venezuelan Institute for Scientific Investigations, a team of geneticists, doctors, dentists, linguists, and anthropologists has traveled deep into the dense jungles along the Orinoco River bordering Brazil and Venezuela. Their objective—to find and trace the physical and cultural factors which have influenced genetic changes among the Yanomama Indians.

Why go so far to study genetics? Because the 10,000 Yanomama tribesmen have not experienced the social and technological impacts associated with modern day man. According to Dr. Neel, "The project offers a rapidly vanishing opportunity to gain insight into both genetic and physiological adaptations of man during a pre or early agriculture period in his evolution." Once scientists have a clear picture of how a variety of genetic characteristics develop and evolve in a somewhat "natural" human population environment, they may be better equipped to estimate the impact of radiation on our genetic legacy.

Behavioral Patterns Studied

While the joint AEC-NSF project, a part of the United States' contribution to the International Biological Program, began in 1969, AEC interest in the work dates back to 1960, when the Commission funded the project as a part of an overall effort to evaluate genetic changes in population resulting from radiation.

Because genetic differences in human populations probably first developed when human life styles were quite primitive, Dr. Neel's project required a population which was still primitive. Their search led to the Yanomama—a tribal society with a culture based on hunting and some basic farming. Four expeditions to the land of the Yanomama followed, during which time Dr. Neel and his fellow researchers visited over 40 villages. With the cooperation of the Venezuelan Institute of Scientific Investigation, the team made extensive medical and dental examinations of the tribesmen, as well as observations of the tribe's behavior patterns.

High Chromosome Damage Noted

Combining these field investigations with the modeling program of an IBM 1130 computer, Dr. Neel's team hopes to interpret the various "genetic pools," or population profiles, which exist in today's Yanomama culture. Among the puzzling findings are an unexpectedly low infant mortality rate, healthy children but few surviving elders, and an unusually high rate of chromosome damage. Some of the likely explanations for these traits are themselves quite intriguing. For example, among the possible sources suggested as causes of the high incidence of abnormal chromosomes are chronic infections from jungle viruses and parasites and the somewhat common practice of using hallucinogenic drugs.

Three Teams Keep Spotless Records In Softball League

The Rangers and Gashouse Gang battle out for first place in the Softball League, as the K-25 Colts also keep a clean record. The Rangers and Gang have won four, lost none . . . the Colts, three and zero.

Action on May 17 saw the Rangers ride over the M Wingers 12 to 6. Hits were almost evenly divided, however . . . 14 to 13.

The Eagles fly high over the Losers 14 to 8, with almost everybody getting a homer for the Eagles . . . Mundt, Greene, Fraser, Richards and Thompson.

The Gashouse Gang took another win from the Buccaneers 18 to 11 in final action. Legg, Dale and Langenburg poled long homers for the winning squad.

Energetics Win Big

The Energetics ran helter-skel-

ter over the Bat Boys 29 to 15 to start action on May 18. The Boys' Ed Stair sailed two over the fence.

The Rangers bottled up the Bottlenecks for a score of 13 to 1 in a one-sided affray. The Bottlenecks only earned three hits the entire game.

Action closed as the K-25 Devils out-distanced the Raiders 20 to 15.

The May 19 play began as the Eagles defeated the Energetics 19 to 9.

The Losers knocked off the Knockers 23 to 4, and the Bottlenecks belted the M Wingers 22 to 4.

On May 20 the Centaurs eked out a one-pointer from the Turnabouts 6 to 5.

Colts Win Again

The Hootowls fell to the Bottle-

necks 21 to 2, and the Bat Boys beat the Knockers 21 to 12.

On May 21, the Gashouse Gang galloped past the Bat Boys 22 to 6, and the Knockers fell to the Hootowls 9 to 4.

Final play saw the K-25 Colts clip the Eagles 12 to 9.

League standings (May 24):

Team	W	L
Rangers	4	0
Gashouse Gang	4	0
K-25 Colts	3	0
Buccaneers	3	1
Losers	2	1
All Stars	2	1
Eagles	2	2
K-25 Devils	2	2
Bottlenecks	2	2
Bat Boys	2	3
Centaurs	2	3
Hootowls	1	2
Energetics	1	3
Raiders	1	3
M Wingers	0	2
Knockers	0	3
Turnabouts	0	3

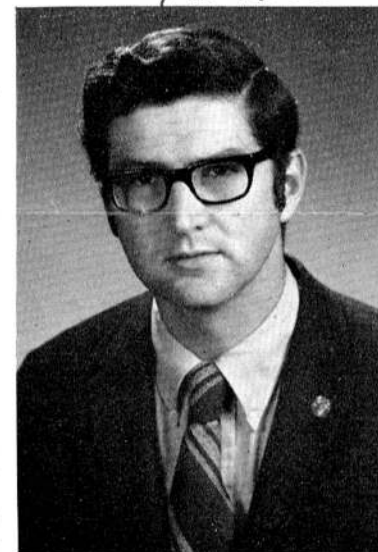
State Jaycees Select Landry

L. C. "Tuck" Landry (ORNL Biology Division at Y-12) was named the outstanding Jaycee state director in Tennessee by the state convention which met recently at Chattanooga.

As state director, Landry was responsible for numerous activities for the Oak Ridge Jaycees, with whom he has been affiliated since 1968. He served as chairman or subchairman of a dozen or more major projects, attended numerous meetings, and had 100 percent attendance at membership and board meetings during the past year.

One of his most outstanding contributions was leadership in efforts which led to a new Jaycee chapter in Jellico, Tenn., this year. Other committee chairmanships included the On-to-St. Louis Club, a slide and tape presentation for new members, and the constitution and by-laws revisions.

Landry first joined the Jaycees in Warrenton, Va., in 1963, and later served with the Durham,



L. C. Landry

N. C. Jaycees in 1965-66, before coming to Oak Ridge in 1968. He has served the Oak Ridge Jaycees as a member of the board of directors, board of trustees, internal vice-president, and state director.

George Reimann Leads Riflers in Third Shoot

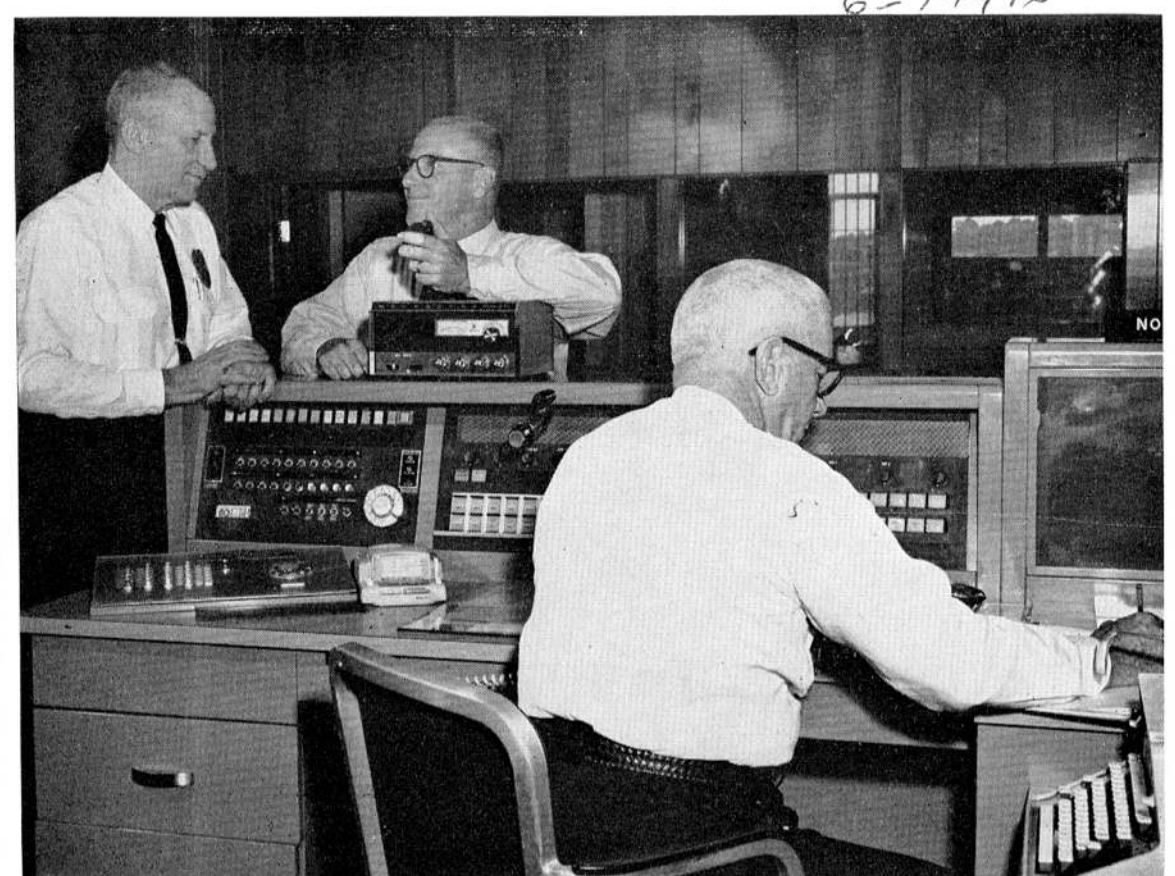
George Reimann, ORNL, won the third match of the All Carbide High Power Rifle League with a 478 out of a possible 500. Jack Huff, Y-12, placed second with 468, and Jack Mrochek, ORNL, was third with a 459.

Other scores were:

Firer	Score
Don Kiplinger, ORNL	457
A. A. Abbatiello, ORNL	452
Larry Weston, ORNL	433
Vic Fowler, ORNL	427
Dennis Chilcote, ORNL	416
Charlie Harrison, ORNL	389
Troy Burklow, Y-12	381
Bert Seales, Y-12	358-1X
Sherrill Ramey, Y-12	358-1X
Glen Davis, Y-12	333
Bob Daman, ORGDP	328
Hicklin Harrell, AECOP	321
Cecil Ramey, Y-12	227

AEC Goes Civilian

The Atomic Energy Commission was established by Congress when it passed the Atomic Energy Act of 1946. It succeeded the Manhattan Engineer District and officially came into existence on January 1, 1947.



PUBLIC SERVICE ACKNOWLEDGED—The Anderson County Radio Communications Club has been praised for providing a base communications service to assist the Oak Ridge police department. Shown here, from left, are police chief C. T. Vettel, Radio Club president W. N. Shipley, and desk sergeant Pat Turner. Shipley's arm is resting on a citizens-band radio owned and operated by the police department to keep in radio contact with club volunteers on patrol.

Radio Club Again Praised for Service

Another phase of public service by the Anderson County Radio Communications Club has been acknowledged.

The Radio Club is a group of volunteers, including many Carbide employees, who regularly use citizens-band radio systems to assist in civil defense and other public-service activities.

This time, the Oak Ridge police department has praised the group because of assistance in extending base communication for patrolling policemen. In a letter to Club president W. N. Shipley (photographer at Y-12), city police chief C. T. Vettel cited the fact that club volunteers had logged more than 15,000 driving miles and more than 4,000 man-hours of support in patrolling the city and relaying police messages.

City police captain George Mills, who had the original idea, is in charge of liaison with club volunteers. The supplemental service has been instrumental in investigating several reported burglaries during this period of time. Mills is also a member of the Radio Club.

Earlier this year, the Radio Club offered its communications system for use in picking up paper donations for Daniel Arthur Rehabilitation Center, an activity which netted Daniel Arthur more than \$150 when the paper was sold for reprocessing in Knoxville.





VISIT CARBIDE EXHIBIT—More than 900 persons attended the 17th annual Southeastern Instrument Society of America Conference and Exhibit held earlier this month at Gatlinburg. Shown visiting the Union Carbide exhibit are, from left, G. H. Job, G. G. Fee, B. B. Bell, and S. B. Prellwitz. Bell and Job were conference chairman and co-chairman, respectively. Fee is marketing manager for Carbide's Materials Systems Division, White Plains, N. Y.; and Prellwitz, with the U. S. Steel Corporation, served as a session chairman. The meeting was hosted by the Oak Ridge section of the ISA.

Sylvan J. Cromer

(Continued from Page 1)
University, Granville, Ohio.
Cromer's special interests include woodworking and photography.

Highly Praised

"Sylvan Cromer is adept at building effective engineering organizations which can handle large-scale projects requiring the development of new engineering technologies. He is an unusually energetic leader who is able to build a strong esprit de corps in a newly-formed organization in a very short time. In summary, in my opinion, (he) fully meets the high standards set up by our Society for the grade of Membership of Fellow," read an endorsement.

"One rarely finds a man who better measures up to the traditional standards for nomination to the grade of Fellow in the ASME," read another one.

Rigid Requirements

The ASME states that a Fellow shall be an engineer who shall have acknowledged engineering attainments, 25 years of active practice in the profession of engineering or teaching of engineering in a school of accepted standing,

Union Carbide's DigiChem Seen At ISA Meeting

One of many highlights of the recent Southeastern ISA Conference and Exhibit in Gatlinburg was the showing of Union Carbide's new DigiChem system — the automatic chemical analyzer rugged enough for reliable, un-

attended operation in the demanding environments of chemical plants, paper mills, petroleum refineries, and waste-treatment plants.

Explaining the system to exhibit visitors during the three-day ISA conference was G. G. Fee, marketing manager of Carbide's Materials Systems Division at White Plains, N. Y.

The DigiChem will perform automatic volumetric titrations in aqueous or nonaqueous media. "The device can be used to monitor and control chemical reactions or measure contaminant levels," Fee said.

With DigiChem, processes such as waste water treatment, acid-base neutralization, and white liquor recovery can be controlled on site, rather than from the laboratory. Also on hand for the exhibit were a model of the Unox system, a new oxygenation system for treating municipal and industrial wastewater, and brochures on other Carbide analytical systems designed for monitoring environmental factors. The Unox system was developed by the Linde Division.

The Carbide exhibit was one of more than 80 at the ISA Conference at the Civic Auditorium in Gatlinburg.



UNION CARBIDE CORPORATION

NUCLEAR DIVISION

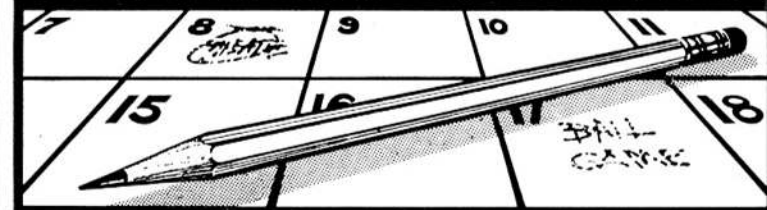
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CALENDAR OF EVENTS



TECHNICAL

June 4

Physics Division Seminar: "Similarities and Differences in Chemical and Nuclear Reactions," E. P. Wigner, Princeton University. East Auditorium, Building 4500N, 3 p.m.

June 7

ORAU Medical Division Staff Seminar: (Title to be announced), Dr. Hirotake Nakehi, Chiba University School of Medicine, Department of Radiology, Chiba, Japan. Main Conference Room, Vance Road, 4 p.m.

June 8

ORNL-NSF Environmental Lunch Hour Films: "Trouble with Trash" (20-minute color) and "The Human Element" (30-minute color). Isotopes Auditorium, Building 3047, 12 noon.

June 11

Reactor Division Seminar Series on Reactor Technology: "The Molten Salt Breeder Reactor," Paul Haubenreich. Large Conference Room, Building 9204-1, Y-12 Plant, 3 p.m.

June 16

Metals and Ceramics Division Seminar: "Radiation Effects on Man and Ecology Resulting from the Present and Future Nuclear Power Industry," William Bibb, Division of Biology and Medicine, AEC, Washington. Central Auditorium, Building 4500N, 2:30 p.m.

Recording for the Blind Needs Summer Readers

The Oak Ridge Unit of Recording for the Blind is seeking volunteer readers and monitors. The studio is located in the Margaret Despres Weinberg Center, the Unit's new building at 205 Badger Rd., next to the Oak Ridge Art Center.

New readers and monitors are particularly needed during summer months when many regular readers are not available. Those who can give an hour or more a week—days or evenings—are asked to call the studio at Oak Ridge telephone number 482-3496. Mrs. W. W. Grigorieff or Mrs. Murray Hanig will answer questions and schedule appointments.

Since the Unit has moved into the new building, capacity for production of tapes has been greatly expanded. Therefore, many new readers and monitors can be added for the variety of reading. The reading is mostly at college and graduate level in such subjects as psychology, sociology, history, literature, physics, physical sciences, mathematics, etc.

The tapes are furnished, free, to blind students.

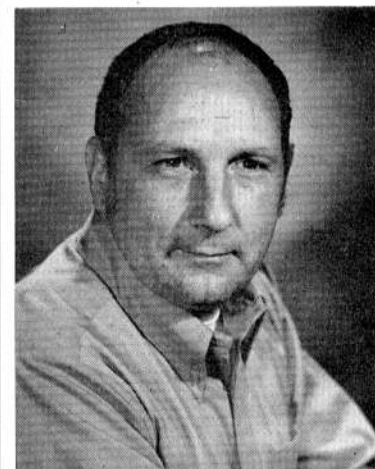
Double Bill Closes Playhouse Season

The Oak Ridge Playhouse will present its final production of the season Friday, as two of the funniest plays to be seen in years open — Jules Feiffer's *Crawling Arnold* and "Black Comedy" by Peter Shaffer. The double bill will be repeated June 5, 11, 12, 18 and 19 at the Playhouse, beginning each evening at 8:20 p.m.

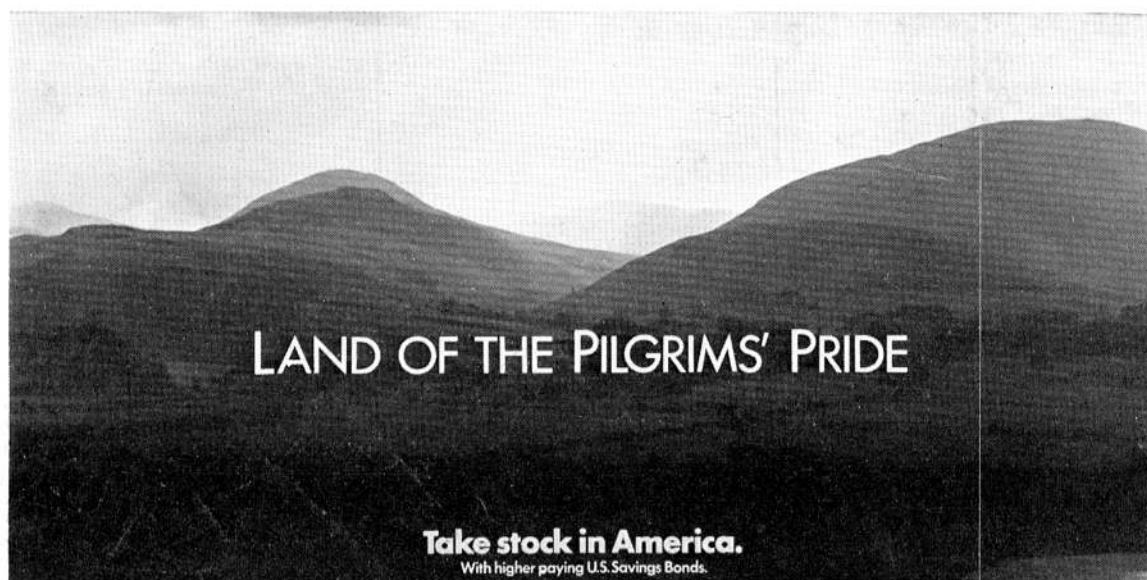
In "Crawling Arnold," Arnold literally crawls. His reasons and the way his parents feel about their 35-year-old son who has found his peculiar way to express himself provide plenty of material for Feiffer to make his usual witty and razor-sharp observations about people in general.

Following this curtain raiser, "Black Comedy" will demonstrate that originality on the state is far from dead. The action takes place while the lights are out — but they are out only for the actors, not the audience. Mistaken identities, the moving of a whole roomful of furniture without anyone noticing, literate electricians, ex-girl friends and other disasters befall a promising young sculptor who only wants to sell some of his masterpieces and impress his fiancée's father. It is a farce of the first-order and has won unanimous approval from audiences all over the world.

Reservations and additional information on the Playhouse may be obtained from the box office, or telephone number 483-1224.



SYMPOSIUM — Elmer C. Breidert, operations engineering department at the Paducah Gaseous Diffusion Plant, participated in a special symposium at the American Institute of Chemical Engineers national meeting recently. Breidert spoke on a "Diffusion Plant from the Operations Point of View." Five other Nuclear Division men spoke at the Cincinnati meeting.



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With higher paying U.S. Savings Bonds.